

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Appellant: Carl. E. Whitcomb

Serial No.: 10/075,096

Filed: October 29, 2001

For: Root Growth Barrier and Method

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Examiner: Son T. Nguyen

Group Art Unit: 3643

AMENDED APPEAL BRIEF OF APPELLANT

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APPEAL BRIEF

Appellant timely filed a Notice of Appeal to this Board on July 27, 2006 appealing the decision of the Examiner in the Final Office Action dated June 27, 2006, for the above captioned application. Appellant hereby submits this Brief of Appellant within the two month period following the Notice of Appeal.

(1) REAL PARTY IN INTEREST

The real party of interest in this action is Lacebark, Inc., the recorded assignee of the entire right, title and interest in and to the patent application now under appeal before this Board. Lacebark, Inc. is a corporation of the State of Oklahoma, having a place of business at Stillwater, Oklahoma 74705.

(2) RELATED APPEALS AND INTERFERENCES

The presently appealed U.S. Application No. 10/075,096 was the subject of previous Appeal No. 2005-2481, which received a Decision on Appeal dated February 9, 2006.

The presently appealed U.S. Application No. 10/075,096 also has a pending continuation-in-part U.S. Application No. 10/770,352 that was filed on February 2, 2004, which is the subject of a pending appeal. Some of the claim limitations have some similarities to the claims in the present appeal.

There are no other appeals or interferences known to Appellants, Appellants' legal representative, or Assignee that will affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

(3) STATUS OF THE CLAIMS

The status of all claims in the application under appeal is as follows: claims 1-65 stand rejected. All of the rejected claims 1-65 are under appeal.

(4) STATUS OF AMENDMENTS

Appellant proposed no amendment in response to the Final Office Action on which this appeal is filed. There are no outstanding amendments that have not been entered by the Examiner.

(5) SUMMARY OF THE INVENTION

Appellants identified a need for an apparatus and methods for using a root growth barrier or container for the purposes of encouraging healthy and abundant root growth and permitting optimal development and growth of lateral roots and root tips. (Specification, p. 4, ln. 1-3). Appellant claims a root growth barrier, apparatus, and method comprising, *inter alia*, a root-tip-trapping material bonded to a layer of root-impenetrable material. (Claims 1, 29, 46, and 48). Appellant also claims a root growth barrier comprising, *inter alia*, a polymer sheet bonded to a porous fabric. (Claims 49 and 57). In another embodiment, Appellant claims a method, comprising, *inter alia*, placing growing medium in a container comprising a root impenetrable outer layer bonded to an inner root-penetrable material. (Claim 47). FIG. 3 provides a view of the root growth barrier showing the bilayer structure. (Specification, p. 10, ln. 4-7). In a preferred embodiment of the invention, the bonding interface **22** between the layers is formed by laminating the root-impenetrable material **16** onto a fabric root-tip-trapping material **18**. *Id.*

Each of the independent claims 1, 29, 46, 47, 48, 49 and 57 include the limitation that the layers of the material, *i.e.*, the root-tip-trapping material and the root impenetrable material, are *bonded* together. The bonding may be accomplished in a variety of ways, such as lamination or

by means of an adhesive. (Specification, p. 5, Detailed Description, ln. 4-5). Any glue may be used provided it is water insoluble and any lamination technique may be used provided that the lamination temperature does not melt the root-tip-trapping material. (Specification, p. 7, ln. 16-18). Alternatively, one of the layers may be formed directly onto the other layer, such as the root-impenetrable layer being sprayed over the root-tip-trapping layer. It is an important aspect of the invention that the root growth barrier improves root branching without air root pruning or constriction pruning. (Specification, p. 6, ln. 5-6).

Each of the independent claims 1, 29, 46, 47, 48, 49 and 57 include the limitation of a root-tip-trapping material or a porous fabric, this being the material that is bonded to a root-impenetrable material. The layer or layers of root-tip-trapping material may be any fabric that, when bonded to a layer of a root-impenetrable material on one side surface (*i.e.*, face-to-face), will provide the bilayer composite with the capacity to trap an actively growing root tip between the fabric's fibers (within the fabrics openings) and against the root impenetrable material. (Specification, p. 6, ln. 7-11). The fabric fibers need only be thick enough so as to trap the root-tip against the root-impenetrable material to stop further root extension and the fibers may be free, looped, knitted, woven or spun bonded so long as the fibers do not deform or stretch when a root pushes against it and it provides for a very high number of root tips to become trapped in the openings on the fabric surface. (Specification, p. 6, ln. 11-14).

As disclosed in the Specification,

Figure 4 is a partial perspective view of a root growth barrier **24** having a root-tip-trapping layer of a knit-type fabric **26** providing a high-density of discrete root-tip-trapping elements **28**. Plant roots **30** extend through a growth medium (not shown) to penetrate the root-tip-trapping layer **26** and root tips **34** that become trapped against the root-impenetrable layer **16**. As a result of root tips **34** becoming trapped, the root tips **34** swell somewhat, become more thick-bodied, give up control and allow side branches **31** to grow.

This new root side branching occurs back approximately 4 inches from the tumescent root tip. These new side branches undergo a similar process when they encounter the barrier **24**.

Id. at p. 10, ln. 8-15.

Each of the independent claims 1, 29, 46, 47, 48, 49 and 57 further include the limitation of a root impenetrable material, which claims 49 and 57 claim in the form of a polymer sheet or a polyethylene sheet. The root impenetrable sheet may be any material that does not permit root penetration, such as films, dense fabrics, aluminum or other metal foils, and plastic sheets and is preferably water-impenetrable to prevent water loss therethrough. (Specification, p. 6, last paragraph). The root-impenetrable layer may be formed by any composition, including polymers, inorganics, and composites, with polymers being the most preferred. (Specification, p. 7, ln. 1-2). Polymers such as vinyl, or polyolefins such as polyethylene, polypropylene, polyisobutene, poly but-1-ene, and poly 4-methyl-pent-1-ene may be used. (Specification, p. 7, ln. 2-4).

The root-tip-trapping material that is bonded to a root impenetrable material may also be formed into containers wherein plants may be placed and grown for shorter or longer periods of time. (Specification, p. 7, ln. 21-23). A container may also be formed of the material to function as a “grow bag” in the field soil, advantageous because the roots are restricted to the container. (Specification, p. 8, ln. 14-23).

As disclosed in the Specification,

Figure **5** is a partial cross-sectional view of a prior art air root pruning material **40** suitable for forming a container. The roots **30** are allowed to extend through the material **40** such that the root tips **34** are exposed to the surrounding air where the root tips become dehydrated and die. Side branches **36** then grow within the material **40** and may later become air root pruned as well. It should be noted that substantial growth of root side branches **36** occurs within the material **40**. However, because the roots pass

through the material **40**, most of these roots will be broken off when the material is removed. It should also be noticed that there is no barrier to water loss. Furthermore, if the material **40** is used inside a conventional plastic container, the roots will extend through the material and begin to circle against the container wall.

Figure **6** is a partial cross-sectional view of the root growth barrier **12** of Figure **3** illustrating how root tips **34** of the roots **30** enter into the layer of root-tip-trapping material **18** and impinge upon the root-impenetrable material **16** to become trapped. As in Figure **4**, it is an important aspect of the invention that the root tips **34** swell and allow enhanced root side branches **31** to grow within the growth medium **32**. Accordingly, when the plant is removed from the root growth barrier **12**, or a container made there from, the roots **31** will not be lost. In fact, the barrier **12** may be easily peeled away from the roots with little or no damage to the roots.

Id. at p. 10.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- a. Whether claims 1-48, 63-65 are unpatentable under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.
- b. Whether claims 1, 2, 15, 18, 19, 29, 30, 46-48 are unpatentable under 35 U.S.C. 102(b) over Reynolds et al. (3080680).
- c. Whether claims 3, 25, 26, 31, 32, 64 and 65 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al (3080680).
- d. Whether claims 4-11, 27-28 and 33-38, 42, 44, 49-53, 55-57, 59-62 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claims 1 & 29 above, and further in view of Reiger (6202348).
- e. Whether claim 12 is unpatentable under 35 U.S.C. 103(a) over Reynolds, et al. as modified by Reiger as applied to claims 1, 4, 10, 11 above, and further in view of Thomas (5311700).

f. Whether claims 13-14, 16, 41, and 63 are unpatentable over Reynolds et al. as modified by Reiger as applied to claims 1, 4 above, and further in view of Berlitz et al (GB 2073567A).

g. Whether claims 17, 21, 22 and 24 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claim 1 above, and further in view of Van der Goorbergh (EP 300578 A3).

h. Whether claims 20 and 23 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claim 1 above, and further in view of Flasch, Jr. (5852896).

i. Whether claims 39-40 are unpatentable over Reynolds et al. as modified by Reiger as applied to claims 29, 36 above, and further in view of Flasch, Jr. (as above).

j. Whether claim 43 is unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claim 29 above, and further in view of Kalpin (3094810).

k. Whether claims 45 is unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as modified by Reiger as applied to claims 29, 33 above, and further in view of Billings (6223466).

l. Whether claims 54 and 58 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as modified by Reiger as applied to claim 29 above, and further in view of Van der Goorbergh (as above) and Berlitz et al. (as above).

(7) ARGUMENT

a. Whether claims 1-48, 63-65 are unpatentable under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

(1) Applicable law.

It is the invention described in the claims that must be enabled. Details regarding how to make and use the invention may be unnecessary if a person of ordinary skill in the art could understand the invention without such an explanation. Thus, the application need be written only for one of ordinary skill, and not for the novice. And when an invention involves multiple technologies or aspects, enablement is judged from the view of the person of ordinary skill for each separate technology or aspect. *In re Naquin*, 398 F.2d 863, 158 USPQ 317, 319 (C.C.P.A. 1968). Accordingly, Applicant's disclosure obligation varies according to the art to which the invention pertains. *In re Hayes Microcomputer Prods. Inc. Patent Litig.*, 982 F.2d 1527, 25 USPQ 2d 1241 (Fed. Cir. 1992). "Not every last detail is to be described, else patent specifications would turn into production specifications, which they were never intended to be." *In re Gay*, 309 F.2d 769, 135 USPQ 311, 316 (C.C.P.A. 1962).

The examiner bears the burden of showing that the application is nonenabling, i.e., that the application does not teach one of ordinary skill in the art how to make and use the invention. *In re Wright*, 999 F.2d 1557, 27 USPQ 2d 1897, 1908 (Fed. Cir. 1990). This burden requires a showing that the disclosure entails undue experimentation. *In re Angstadt*, 537 F.2d 489, 190 USPQ 214, 219 (C.C.P.A. 1976). Furthermore, it must be emphasized that "[i]t is only *undue* experimentation which is fatal." *In re Geerdes*, 491 F.2d 1260, 180 USPQ 789, 793 (C.C.P.A. 1974). A single embodiment may provide broad enablement in predictable technologies.

(2) The Examiner has not established *prima facie* nonenablement against any of claims 1-65.

(a) Insufficient findings to support nonenablement.

The Examiner has not made any findings regarding either the art to which the invention pertains or the level of ordinary skill in that art. In particular, the Examiner's comments are directed to whether there is enablement for the two claimed materials being "bonded." Accordingly, this aspect of the invention deals with bonding of materials. The Examiner must therefore explain why a person having an ordinary level of skill in the art of bonding materials would not be able to bond these materials without undue experimentation.

(b) Enablement does not require Applicant to explain a theory of operation.

The Examiner complains that "[A]ppellant's specification did not clearly explain what prevents the root tips to just stop in the material (18) and not continue to re-route along the sidewall or in the space between material (16) and material (18)." (Final Office Action of June 27, 2006, page 3, lines 5-7). Applicant strongly disagrees and refers to the summary provided in Section (5) of this Appeal Brief. The summary, as well as the specification from which much of the summary is taken, describe how the tips of roots are trapped so that the root cannot extend any further. However, Applicant would assert that a disclosure of the theory of root-tip-trapping, while in fact provided, is not necessary for enablement. Rather, the enablement inquiry should remain focused on the disclosure of how to make and use the claimed invention. The claimed invention is made by bonding a root-tip-trapping material to a root-impenetrable material. Furthermore, Applicant asserts that it is clear from the present disclosure that the reason roots do not "continue to re-route along the sidewall or in the space between material (16) and material

(18)” is because these two materials are bonded. This point is made particularly clear from the following statement taken from the application:

The layer or layers of root-tip-trapping material may be any fabric that, when bonded to a layer of a root-impenetrable material on one side surface (*i.e.*, face-to-face), will provide the bilayer composite with the capacity to trap an actively growing root tip between the fabric’s fibers (within the fabrics openings) and against the root impenetrable material. (Specification, p. 6, ln. 7-11). The fabric fibers need only be thick enough so as to trap the root-tip against the root-impenetrable material to stop further root extension and the fibers may be free, looped, knitted, woven or spun bonded so long as the fibers do not deform or stretch when a root pushes against it and it provides for a very high number of root tips to become trapped in the openings on the fabric surface. (Specification, p. 6, ln. 11-14).

(c) Enablement of even one embodiment can support the claims.

The Examiner also remarks that “the bonding between materials (16 & 18) appears to be any glue (see page 7, 2nd paragraph of Applicant’s specification), therefore, unless the glue is superglue to stick the two materials so strongly together that the roots cannot push the material (16) and grow in the space therebetween, the roots will grow through material (18) (with some roots trapped therein similar to fig. 5 prior art) and travel along the space between material (16) and material (18).” (Final Office Action, page 3, lines 7-13). However, the broad disclosure of “any glue” in the specification does not lead to the conclusion that there is no enablement for the claim limitation of the materials being “bonded.”

Rather, the application discloses that the bonding of the materials may be accomplished in a variety of ways, such as lamination or by means of an adhesive. (Specification, page 5, lines 4-5; and page 7, lines 13-14). Alternatively, one of the layers may be formed directly onto the other layer. (Specification, page 7, lines 18-20). Working example 5 use “a layer of 3 mil white polyethylene laminated onto a layer of 6 oz. per square yard spun bonded needle punched polypropylene fabric. (Specification, page 11, lines 5-7; and each of the Examples). The

Examiner has not provided any basis for these working examples failing to provide one having ordinary skill in the art of bonding materials with sufficient information to make the claimed root growth barrier. Applicant asserts that even this single embodiment of laminating is sufficient to provide broad enablement for bonding.

Claims 1-28 and 63-65.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding materials would know how to bond “a layer of root-tip-trapping material” to “a layer of a root-impenetrable material” as set out in claim 1.

Claims 29-45.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding materials would know how to bond “a root-tip-trapping material” to “an inner wall” of “a root-impenetrable container” as set out in claim 29.

Claim 46.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding

materials would know how to bond “a root-tip-trapping inner material” to “a root-impenetrable material” as set out in claim 46.

Claim 47.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding materials would know how to bond “a biodegradable root-impenetrable outer material” to “an inner root-penetrable material” as set out in claim 47.

Claim 48.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding materials would know how to bond “a layer of root-tip-trapping material” to “a layer of root-impenetrable material” as set out in claim 48.

Claims 49-56.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding materials would know how to prepare “a polymer sheet having a surface bonded to a porous fabric” as set out in claim 49.

Claims 57-62.

Applicant reasserts the arguments made above in Section 7(a)(2)(a)-(c) asserting that the examiner has failed to make sufficient findings to establish a *prima facie* case of nonenablement, that enablement does not require Applicant to explain a theory of operation, and that enablement of even one embodiment can support the claims. One having ordinary skill in the art of bonding materials would know how to bond “a porous fabric layer” to a surface of a “polyethylene sheet” as set out in claim 57.

b. Whether claims 1, 2, 15, 18, 19, 29, 30, 46-48 are unpatentable under 35 U.S.C. 102(b) over Reynolds et al. (3080680).

(1) Applicable law.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*" *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984). Under 35 U.S.C. Section 102, anticipation requires that "the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public." *Akzo N.V. v. U.S. Int'l Trade Comm'n*, 808 F.2d 1471, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986). "There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). Similarly,

the Federal Circuit has stated that “[a]n anticipating reference must describe the patented subject matter with sufficient clarity and detail to establish that the subject matter existed and that its existence was recognized by persons of ordinary skill in the field of the invention.” *ATD Corp v. Lydall, Inc.* 159 F.3d 534 (Fed. Cir. 1998).

The Court of Appeals for the Federal Circuit has recently reaffirmed that examiners must interpret claim terms in a manner that is consistent with the specification. The case of *In re American Academy of Science Tech. Center* is cited in the Manual of Patent Examining Procedure, Section 211.01 entitled “Plain Meaning.” According to this Federal Circuit opinion, “[d]uring examination, ‘claims . . . are to be given their broadest reasonable interpretation consistent with the specification, and . . . claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’” *In re American Academy of Science Tech Center*, 367 F.3d 1359 (Fed. Cir. 2004). Accordingly, it is required that claim terms be read in light of the specification and interpreted consistent with the specification. The M.P.E.P. Section 2111.01, Subsection III, entitled “Applicant May Be Own Lexicographer,” emphasizes that:

The specification should also be relied on for more than just explicit lexicography or clear disavowal of claim scope to determine the meaning of a claim term when an applicant acts as his or her own lexicographer; the meaning of a particular claim term may be defined by implication, that is, according to the usage of the term in context in the specification. See *Phillips v. AWH Corp.*, 363 F.3d 1207, 75 USPQ2d 1321 (Fed. Cir. 2005)(*en banc*); and *Vitronics Corp. v. Conceptronic Inc.*, 90 f.3d 1576, 1583 USPQ2d 1573, 1577 (Fed. Cir. 1996).

(2) Review of the cited prior art.

Reynolds '680 discloses a organic fibre pot, particularly a pot comprising predominately peat moss, that is strengthened by applying a removable plastic coating, skin or enrobement to the outside of the pot. (Reynolds, col. 2, lines 40-46). Reynolds states that the enrobements:

“deflect roots which penetrate the pot wall, and *cause them to continue to grow in the inter-face between the pot and the skin*. Thus, the roots are there and ready to grow out into the soil the moment the external film is removed and the plant transplanted.” (Reynolds, col. 3, lines 20-25, *emphasis added*).

Reynolds goes on later to say that:

“as plants grow in the pots, rootlets will force their way through the walls of the pot, just as they do in the use of conventional fibrous pots, and that the degree of adherence of the enrobement to the pot is such that *the rootlets can continue to grow in the interface between the skin and the pot*, but will not force their way through the skin.” (Reynolds, col. 5, lines 66-73, *emphasis added*).

(3) Claims must be interpreted consistent with the specification.

Appellant asserts that it is necessary to review the Appellant's specification for an express or implied definition of the claim term “root-tip-trapping.” Appellant asserts that the term “**root-tip-trapping**” is defined by the following portions of the specification:

(a) “Whitcomb (4,497,132) teaches that when root tips are trapped . . . and cannot extend, root tips cease to grow and root branching results.” (Specification, para. 5).

(b) “As a result of root tips **34** becoming trapped, the root tips **34** swell somewhat, become more thick-bodied, give up control and allow side branches **31** to grow.” (Specification, para. 41).

(c) “Figure **6** is a partial cross-sectional view of the sidewall **17** in the root-tip-trapping region **13** of the container **10** (similar to Figure **3**) illustrating how the tips **34** of the roots **30** enter into the layer of porous fabric **18** and impinge upon the root-impenetrable material

16 to become trapped. As in Figure **4**, it is an important effect of the invention that the root tips **34** swell and allow enhanced root side branches **31** to grow within the growth medium **32**.” (Specification, para. 43; and Figure 6).

Accordingly, “root-tip-trapping” means that the tip of a root becomes trapped and cannot grow or extend any further. Furthermore, this definition from the specification is entirely consistent with the ordinary and customary meaning given to the term by those of ordinary skill in the art. Evidence of this fact is found in the cited reference to Reiger, U.S. 6,202,348. Reiger explains that “the nursery industry utilizes three methods to stop root circling and to root prune.” (Reiger, col. 2, lines 45-46). The third method uses a root pruning structure where “[r]oot tips of plants grown in such pots may be trapped . . . so that the roots lose their apical dominance and begin to branch in the pot.” Reiger, col. 2, lines 58-65.

Furthermore, Whitcomb (U.S. Patent 4,442,628) describes a “root-pruning structure” including “root traps” whereby “the tip of the roots” becomes trapped. (U.S. 4,442,628, col. 4, lines 44-64). Root tips become trapped in the ‘628 stair stepped container structure such that physical restriction to further elongation of the root caused branching to occur much like air-root-pruning.

Appellant asserts that this evidence shows that one of ordinary skill in the nursery industry would understand the term “root-tip-trapping” to mean a root pruning structure in which root tips become trapped. Thus, a root tip is not “trapped” and a material is not “root-tip-trapping,” as those terms are properly interpreted from the present specification, if the root tip continues to extend and grow in the manner that it does in Reynolds, where the roots grow in the interface between the skin and pot. Reynolds would merely redirect root tips in a manner similar to what occurs with other conventional nursery plant containers having smooth side walls.

(4) Reynolds '860 does not disclose any structure for root-tip-trapping, when that term is interpreted consistent with the specification, as claimed in any of claims 1-65, including claims 1, 2, 15, 18, 19, 29, 30, and 46-48.

Reynolds' enrobement allows roots to grow in the interface between the pot and the skin so that the roots are ready to grow out into the soil as soon as the enrobement is removed. This treatment of roots is extremely detrimental to the long term growth of a plant because the roots will circle around within the skin without significant branching and will not have an appropriate root ball upon removal from the pot and planting into the soil. Reynolds specifically discloses that his structure allows roots to continue growing between the pot and skin. Reynolds' structure may "contain" roots within the skin surrounding the pot, but the structure does not perform root-tip-trapping as set out in Applicant's specification.

Claims 1, 2, 15, 18 and 19.

Applicant reasserts the arguments made above in Section 7(b)(3) and (4) asserting that Reynolds '860 does not disclose any structure for root-tip-trapping, when that term is interpreted consistent with the specification. Reynolds '860 does not disclose the limitation of "a layer of root-tip-trapping material bonded to a layer of root-impenetrable material" as set out in claim 1.

Furthermore, the examiner says that "some roots (the smaller ones) will be trapped in the material 18, which is demonstrated by fig. 5, Prior Art, of Applicant's drawing." (Office Action of June 27, 2006, page 4, lines 5-7). First, Fig. 5 of Applicant's drawings shows a prior art material having roots passing through the material at a given point in time. The roots having a distal end within the material do not have their root tips "trapped", but are merely within the material at the given moment. Accordingly, the description of Fig. 5 explains that "[t]he roots **30**

are allowed to extend through the material **40** . . .” (Specification, page 10, line 17; discussing Fig. 5). If the root tips in Fig. 5 had been trapped, then the tips would have swollen in the manner shown in Fig. 6 and discussed in the description of Fig. 6. (Specification, page 10, lines 25-29; See also Fig. 4 and page 10, lines 8-15).

Second, the examiner asserts that “roots” will be trapped in Reynolds’ material, but Applicant has claimed that a “root-*tip*-trapping” material. Reynolds’ does not expressly or inherently disclose any structure that would trap the tips of roots.

Claims 29 and 30.

Applicant reasserts the arguments made above in Section 7(b)(3) and (4) asserting that Reynolds ‘860 does not disclose any structure for root-tip-trapping, when that term is interpreted consistent with the specification. Reynolds ‘860 does not disclose the limitation of “a root-tip-trapping material” bonded to an inner wall of “a root-impenetrable container” as set out in claim 29.

Furthermore, the examiner says that “some roots (the smaller ones) will be trapped in the material 18, which is demonstrated by Fig. 5, Prior Art, of Applicant’s drawing.” (Office Action of June 27, 2006, page 4, lines 5-7). First, Fig. 5 of Applicant’s drawings shows a prior art material having roots passing through the material at a given point in time. The roots having a distal end within the material do not have their root tips “trapped”, but are merely within the material at the given moment. Accordingly, the description of Fig. 5 explains that “[t]he roots **30** are allowed to extend through the material **40** . . .” (Specification, page 10, line 17; discussing Fig. 5). If the root tips in Fig. 5 had been trapped, then the tips would have swollen in the manner shown in Fig. 6 and discussed in the description of Fig. 6. (Specification, page 10, lines 25-29; See also Fig. 4 and page 10, lines 8-15).

Second, the examiner asserts that “roots” will be trapped in Reynolds’ material, but Applicant has claimed that a “root-*tip*-trapping” material. Reynolds’ does not expressly or inherently disclose any structure that would trap the tips of roots.

Claim 46.

Applicant reasserts the arguments made above in Section 7(b)(3) and (4) asserting that Reynolds ‘860 does not disclose any structure for root-*tip*-trapping, when that term is interpreted consistent with the specification. Reynolds ‘860 does not disclose the limitation of “a bilayer root growth barrier consisting essentially of a root-*tip*-trapping inner material bonded to a root-impenetrable material” as set out in claim 46.

Furthermore, the examiner says that “some roots (the smaller ones) will be trapped in the material 18, which is demonstrated by fig. 5, Prior Art, of Applicant’s drawing.” (Office Action of June 27, 2006, page 4, lines 5-7). First, Fig. 5 of Applicant’s drawings shows a prior art material having roots passing through the material at a given point in time. The roots having a distal end within the material do not have their root tips “trapped”, but are merely within the material at the given moment. Accordingly, the description of Fig. 5 explains that “[t]he roots **30** are allowed to extend through the material **40** . . .” (Specification, page 10, line 17; discussing Fig. 5). If the root tips in Fig. 5 had been trapped, then the tips would have swollen in the manner shown in Fig. 6 and discussed in the description of Fig. 6. (Specification, page 10, lines 25-29; See also Fig. 4 and page 10, lines 8-15).

Second, the examiner asserts that “roots” will be trapped in Reynolds’ material, but Applicant has claimed that a “root-*tip*-trapping” material. Reynolds’ does not expressly or inherently disclose any structure that would trap the tips of roots.

Claim 47.

Reynolds '860 does not disclose the limitation of “a bilayer root growth barrier consisting essentially of a biodegradable root-impenetrable material bonded to an inner root-penetrable material” as set out in claim 47. The layers disclosed by Reynolds '860 are not bonded because they allow roots to growth in the space between the layers. As stated in Section 7(b)(2), Reynolds states that the enrobements:

“deflect roots which penetrate the pot wall, and *cause them to continue to grow in the inter-face between the pot and the skin*. Thus, the roots are there and ready to grow out into the soil the moment the external film is removed and the plant transplanted.” (Reynolds, col. 3, lines 20-25, *emphasis added*).

Reynolds goes on later to say that:

“as plants grow in the pots, rootlets will force their way through the walls of the pot, just as they do in the use of conventional fibrous pots, and that the degree of adherence of the enrobement to the pot is such that *the rootlets can continue to grow in the interface between the skin and the pot*, but will not force their way through the skin.” (Reynolds, col. 5, lines 66-73, *emphasis added*).

Claim 48.

Applicant reasserts the arguments made above in Section 7(b)(3) and (4) asserting that Reynolds '860 does not disclose any structure for root-tip-trapping, when that term is interpreted consistent with the specification. Reynolds '860 does not disclose the limitation of “a layer of root-tip-trapping material bonded to a layer of a root-impenetrable material” as set out in claim 48.

c. Whether claims 3, 25, 26, 31, 32, 64 and 65 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al (3080680).

(1) Applicable law.

A claimed invention is unpatentable if the differences between it and the prior art “are such that the subject matter *as a whole* would have been obvious at the time the invention was made to a person having ordinary skill in the art.” 35 U.S.C. 103(a) [emphasis added]. The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 291 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

The Federal Circuit has made clear that all claim limitations must be considered and that it is impermissible to merely consider the “idea” of an invention. In *Jones v. Hardy*, 727 F.2d 1524 (Fed. Cir. 1984), the Federal Circuit stated:

Under the patent statute, Title 35 U.S.C., “ideas” are not patentable; claimed structures and methods are. Reducing a claimed invention to an “idea,” and then determining patentability of that “idea” is error. Analysis properly begins with the claims, for they measure and define the invention.

Id. at 1527 [citations omitted].

Furthermore, regarding the requirement that all the claim limitations must be taught or suggested by the prior art to establish a *prima facie* case of obviousness, the *Jones* Court stated:

The “difference” may have seemed slight (as has often been the case with some of history’s greatest inventions, *e.g.* the telephone) but it may also have been the key to success and advancement in the art resulting from the invention. Further, it is irrelevant in determining obviousness that all or all other aspects of the claim may have been well known in the art.

Id. at 1528.

An additional requirement for providing a *prima facie* case of obviousness is that the Examiner must provide a basis for combining or modifying the cited references. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

The case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching, suggestion, or motivation to combine prior art references. *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing “teaching or suggestion or motivation [to combine]” as an “essential evidentiary component of an obviousness holding”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1225, 1232 (Fed. Cir. 1998) (“the Board must identify specifically....the reasons one of ordinary skill in the art would have been motivated to select the references and combine them”); and *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination “only by showing some objective teaching [leading to the combination]”).

Evidence of a suggestion, teaching or motivation to combine references may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996). The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 138, 227 USPQ 543, 547 (Fed. Cir. 1985).

In the case *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000), the Court states:

Most, if not all inventions arise from a combination of old elements . . . Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.
Id. at 1395.

The *Kotzab* Court further distinctly points out the requirement that particular findings are required as to the justification for modifying the teachings of a reference. The Court stated:

Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. The motivation, suggestion or teaching may come explicitly from a statement in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved. In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references . . . The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art . . . Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. Broad conclusory statements standing alone are not evidence.

Id. at 1370.

Further considering the impermissible use of hindsight obviousness analysis in the case *In re McLaughlin*, 443 F.2d 1392 (CCPA 1971), the Court stated:

It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgment of obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made *and does not include knowledge gleaned only from applicant's disclosure*, such a reconstruction is proper.

Id. at 1395, emphasis added.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

(3) Reynolds '860 does not teach, show or suggest any structure for root-tip-trapping, when that term is interpreted consistent with the specification, as claimed in any of claims 1-65.

Reynolds teaches away from the present invention, such as set out in independent claims 1 and 29, by advocating that his enrobement is beneficial because the roots grow in the interface between the pot and the skin and, therefore, the roots are ready to grow out into the soil as soon as the enrobement is removed. As taught by the present invention, Reynolds' treatment of roots is extremely detrimental to the long term growth of a plant because the roots will circle around within the skin without significant branching and will not have an appropriate root ball upon removal from the pot and planting into the soil. Reynolds specifically discloses that his structure allows roots to continue growing between the pot and skin. Reynolds' structure may "contain"

roots within the skin surrounding the pot, but the structure does not perform root-tip-trapping as that term is properly interpreted consistent with the specification.

Claims 25, 26 and 64.

Claims 25, 26 and 64 depend from claim 1 and are patentable for at least the same reasons. Applicant reasserts the comments made immediately above in Section 7(c)(3) regarding how Reynolds teaches away from the present invention. Reynolds does not teach, show or suggest a layer of root-tip-trapping material bonded to a layer of root-impenetrable material as set out in claim 1.

Claims 31 and 32.

Claims 31 and 32 depend from claim 29 and are patentable for at least the same reasons. Applicant reasserts the comments made immediately above in Section 7(c)(3) regarding how Reynolds teaches away from the present invention. For example, Reynolds '860 does not teach, show or suggest a root-tip-trapping material bonded to an inner wall of a root-impenetrable container as set out in claim 29.

Claims 3 and 65.

First, claims 3 and 65 depend from claim 1 and are patentable for at least the same reasons. Applicant reasserts the comments made immediately above in Section 7(c)(3) regarding how Reynolds teaches away from the present invention. Reynolds does not teach, show or suggest a layer of root-tip-trapping material bonded to a layer of root-impenetrable material as set out in claim 1.

Second, claims 3 and 65 depend from claim 1 and are directed to the surface density of root-tip-trapping elements, such as 10 and 100 elements per square inch, respectively. Reynolds '860 is not designed to trap root tips. Prior art that actually does trap root tips has not achieved

10 to 100 elements per square inch. Determining how many roots one *wishes to trap* in the material does not give you the means to *actually trap* that many roots. The claimed invention provides the novel and nonobvious means to achieve 10 to 100 root-tip-trapping elements per square inch. Routine testing would not have led to the present invention.

d. Whether claims 4-11, 27-28 and 33-38, 42, 44, 49-53, 55-57, 59-62 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claims 1 & 29 above, and further in view of Reiger (6202348).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Reiger, U.S. 6,202,348, discloses a plant-growing method and apparatus including an impermeable pot having a porous fabric liner closely received therein. The porosity of Reiger's fabric prevents most of the roots from penetrating the fabric. Roots that penetrate the fabric are choked off by constriction pruning.

(3) Claims 4-11, 27-28 and 33-38, 42, 44, 49-53, 55-57, 59-62 are not obvious.

Appellant respectfully asserts that when the claims are interpreted in light of the specification, Reynolds and/or Reiger do not teach, show or suggest any structure for root-tip-trapping. The Examiner cites Reiger as teaching a root barrier in which he employs a spun bonded needle punched porous fabric. However, Reiger fails to teach, show or suggest bonding

the fabric to a root impenetrable material. In fact, Reiger teaches away from the claimed invention in stating that “it is essential to the present invention that the fiber fabric utilized be a heavy fabric which has been tangled and knotted by needle punching to the degree that a major portion of the root tips growing within the fabric do not penetrate the fabric and that any root tips that do penetrate are choked off by the fabric whereby they do not enlarge outside the fabric.” (Reiger, col. 7, lines 4-10).

It is also asserted that in order to combine Reynolds and Reiger, there must be some reason, suggestion, or motivation from the prior art as a whole for the person of ordinary skill to have combined the references. The only motivation being asserted is that “it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious choice, for both material[s] will trap roots.” (Final Office Action, page 7, lines 20-22). However, it is not clear how this statement provides the requisite motivation to combine. There is no citation to either Reynolds or Reiger in support of the assertion motivation. Reynolds’ enrobement is used to strengthen an organic fiber pot, but there is no suggestion that Reiger’s fabric would either require strengthening or that such an enrobement would provide such strengthening. The Examiner has offered no similar motivation that could explain why one having ordinary skill would have been motivated to combine these particular references.

Appellant further asserts that while Reynolds teaches removal of the enrobement for planting of the pot, Reiger would not plant the fabric layer. In fact, if the fabric of Reiger was incorporated into Reynolds, albeit arbitrarily since no motivation to do so exists, Reiger’s fabric would destroy a primary function of Reynolds’ organic pot.

Reynolds teaches that the type of pot in his invention “has two essential features.” (Reynolds, col. 1, lines 26-27). “The first is that the roots of the plant growing inside it readily penetrate the pot wall, and the second is that the pot, when planted in the soil with the plant, decomposes in due course through bacterial action or other decomposing force.” (Reynolds, col. 1, lines 27-32). However, Reiger’s fabric is expressly not readily penetrable, but rather traps and constricts roots such that it would prevent the normal extension of the roots outside the pot. *Prima facie* obviousness is not properly based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference. See *In re Gordon*, 733 F.2d 900, 211 USPQ 1125 (Fed. Cir. 1984). Here, Reiger’s fabric would destroy an expressly essential feature of Reynolds. Therefore, the combination is improper.

Appellant reasserts the comments made above in Section 7(b)(2) and (3) regarding the scope of the references and the proper interpretation of the term “root-tip-trapping.” Reynolds does not trap roots and advocates that the roots should be allowed to grow through the pot. The Examiner has not explained why Reynolds would go against his own teaching to include a fabric layer that Reiger teaches as trapping roots before they penetrate the fabric. Accordingly, the combination of references cannot support the present rejection. These references address quite different problems and Appellant finds no such motivation or suggestion to combine these references.

Claims 4-11 and 27-28

Appellant reasserts the comments made above in Section 7(d)(3) regarding the non-obviousness of the limitations in the independent claim 1 and the improper combination of the references. Claims 4-11 and 27-28 depend from claim 1 and are patentable for at least the same reasons.

Claims 33-38, 42 and 44.

Appellant reasserts the comments made above in Section 7(d)(3) regarding the non-obviousness of the limitations in the independent claim 29 and the improper combination of the references. Claims 33-38, 42 and 44 depend from claim 29 and are patentable for at least the same reasons.

Claims 49-53, 55-56

Appellant reasserts the comments made above in Section 7(d)(3) regarding the non-obviousness of the limitations in the independent claim 49 and the improper combination of the references. Claims 50-53 and 55-56 depend from claim 49 and are patentable for at least the same reasons. The cited references do not teach, show or suggest “a polymer sheet having a surface bonded to a porous fabric” as set out in claim 49.

Claims 57, 59-62

Appellant reasserts the comments made above in Section 7(d)(3) regarding the non-obviousness of the limitations in the independent claim 57 and the improper combination of the references. Claims 59-62 depend from claim 57 and are patentable for at least the same reasons. The cited references do not teach, show or suggest a porous fabric layer bonded to a surface of a polyethylene sheet” as set out in claim 57.

e. Whether claim 12 is unpatentable under 35 U.S.C. 103(a) over Reynolds, et al. as modified by Reiger as applied to claims 1, 4, 10, 11 above, and further in view of Thomas (5311700).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Reiger, U.S. Patent No. 6,202,348, was discussed in Section 7(d)(2), above, and such description is incorporated here by reference.

Thomas, U.S. Patent No. 5,311,700, discloses a plant container formed by a polyurethane liner support by a wire mesh outer basket. (Thomas, Abstract).

(3) Claim 12 is not obvious.

Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds and asserts that Thomas fails to teach or suggest the limitations missing from Reynolds. In fact, the examiner cites to Thomas at col. 5, line 11. However, Thomas teaches away from the use of cotton, saying that “[t]he cloth should be synthetic, since natural material (cotton, sisal, burlap, etc.) would rot and would then promote rather than hinder root growth.” (Thomas, col. 5, lines 11-14).

f. Whether claims 13-14, 16, 41, and 63 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as modified by Reiger as applied to claims 1, 4 above, and further in view of Berlitz et al (GB 2073567A).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporated here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Reiger, U.S. Patent No. 6,202,348, was discussed in Section 7(d)(2), above, and such description is incorporated here by reference.

Berlitz, et al., GB 2073567, discloses a plant container formed by a laminate of an opaque layer 11 and an outer decorative layer 20. (Berlitz, et al., Abstract).

(3) Claims 13-14 and 16.

Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping region and asserts that Berlitz, et al. fails to teach or suggest the limitations missing from Reynolds/Reiger.

Claim 63.

Claim 63 depends from claim 1 and is patentable for at least the same reasons. Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping region and asserts that Berlitz, et al. fails to teach or suggest the limitations missing from Reynolds/Reiger. Furthermore, Berlitz discloses a laminate of an opaque layer 11, a

decorative layer 12, and a color shielding layer 13. (Berlit, page 1, lines 115-18). There is nothing to suggest that these layers could serve as root-tip-trapping layers. (See discussion of Berlit et al., GB 2073567 in Decision on Appeal, Appeal No. 2005-2481, Feb. 9, 2006; Appendix to this Brief).

Claim 41.

Claim 41 depends from claim 29 and is patentable for at least the same reasons. Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping region and asserts that Berlit, et al. fails to teach or suggest the limitations missing from Reynolds/Reiger. There is nothing to suggest that these layers could serve as root-tip-trapping layers. (See discussion of Berlit et al., GB 2073567 in Decision on Appeal, Appeal No. 2005-2481, Feb. 9, 2006; Appendix to this Brief).

g. Whether claims 17, 21, 22 and 24 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claim 1 above, and further in view of Van der Goorbergh (EP 300578 A3).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Van der Goorbergh, EP 300578A3, discloses a dimensionally stable seed trough made by folding a plastic web having longitudinal fold grooves. One embodiment has a reflective outer coating. (Van der Goorbergh, Abstract).

(3) Claims 17, 21, 22 and 24 are not obvious.

Claims 17, 21, 22 and 24 depend from claim 1 and are patentable for at least the same reasons. Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds failure to teach a root-tip-trapping region and asserts that Van der Goorbergh fails to teach or suggest the limitations missing from Reynolds.

h. Whether claims 20 and 23 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as applied to claim 1 above, and further in view of Flasch, Jr. (5852896).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Flasch, Jr., U.S. 5,852,896, discloses a plant container having an annular wall for receiving water. (Flasch, Jr., Abstract).

(3) Claims 20 and 23 are not obvious.

Claims 20 and 23 depend from claim 1 and are patentable for at least the same reasons. Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds failure to teach a root-tip-trapping region and asserts that Flasch, Jr. fails to teach or suggest the limitations missing from Reynolds.

i. Whether claims 39-40 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as modified by Reiger as applied to claims 29, 36 above, and further in view of Flasch, Jr. (as above).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Reiger, U.S. Patent No. 6,202,348, was discussed in Section 7(d)(2), above, and such description is incorporated here by reference.

Flasch, Jr., U.S. 5,852,896, was discussed in Section 7(h)(2), above, and such description is incorporated here by reference.

(3) Claims 39-40 are not obvious.

Claims 39-40 depend from claim 29 and are patentable for at least the same reasons. Appellant reasserts its comments from Section 7(b)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping material and asserts that Flasch, Jr. fails to teach or suggest the limitations missing from Reynolds/Reiger.

j. Whether claim 43 is unpatentable under 35 U.S.C. 103(a) as being unpatentable over Reynolds et al. as applied to claim 29 above, and further in view of Kalpin (3094810).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Kalpin, U.S. Patent No. 3,094,810, discloses a foldable plant container that can be easily removed from a plant.

(3) Claim 43 is not obvious.

Kalpin is asserted as disclosing a sewn construction that forms a container. (Final Office Action, page 13, lines 7-10; *citing* Kaplin at col. 1, lines 62-71). Applicant does not find mention of sewing in the passage cited by the Examiner. Rather, Kalpin says that the body may be made of a sheet material suitably seamed. Since the container is made from a semi-rigid material or waterproof material, it is not apparent that sewing would be suitable. Accordingly, the rejection cannot stand.

k. Whether claim 45 is unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as modified by Reiger as applied to claims 29, 33 above, and further in view of Billings (6223466).

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Reiger, U.S. Patent No. 6,202,348, was discussed in Section 7(d)(2), above, and such description is incorporated here by reference.

Billings, U.S. Patent No. 6,223,466, discloses a planting system having an inner container and a complementary outer container that is place permanently into the ground and receives the inner container.

(3) Claim 45 is not obvious.

Appellant reasserts its comments from Section 7(d)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping structure and asserts that Billings fails to teach or suggest the limitations missing from Reynolds/Reiger.

1. Whether claims 54 and 58 are unpatentable under 35 U.S.C. 103(a) over Reynolds et al. as modified by Reiger as applied to claim 29 above, and further in view of Van der Goorbergh (as above) and Berlitz et al. (as above)

(1) Applicable law.

The applicable law regarding 35 U.S.C. 103(a) is set out above in Section 7(c)(1), above, and is incorporate here by reference.

(2) Review of the cited prior art.

Reynolds, U.S. Patent No. 3,080,690, was discussed in Section 7(b)(2), above, and such description is incorporated here by reference.

Reiger, U.S. Patent No. 6,202,348, was discussed in Section 7(d)(2), above, and such description is incorporated here by reference.

Van der Goorbergh, EP 300578A3, was discussed in Section 7(g)(2), above, and such description is incorporated here by reference.

Berlit, et al., GB 2073567, was discussed in Section 7(f)(2), above, and such description is incorporated here by reference.

(3) Claim 54 is not obvious.

Claim 54 depends from claim 49 and is patentable for at least the same reasons. Appellant reasserts its comments from Section 7(d)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping structure and asserts that Van der Goorbergh and Berlit et al. fails to teach or suggest the limitations missing from Reynolds/Reiger. There is nothing to suggest that the layers of Berlit et al. could serve as root-tip-trapping layers. (See discussion of Berlit et al., GB 2073567 in Decision on Appeal, Appeal No. 2005-2481, Feb. 9, 2006; Appendix to this Brief).

(4) Claim 58 is not obvious.

Claim 58 depends from claim 57 and is patentable for at least the same reasons. Appellant reasserts its comments from Section 7(d)(3) regarding Reynolds/Reiger's failure to teach a root-tip-trapping structure and asserts that Van der Goorbergh and Berlit et al. fails to teach or suggest the limitations missing from Reynolds/Reiger. There is nothing to suggest that the layers of Berlit et al. could serve as root-tip-trapping layers. (See discussion of Berlit et al., GB 2073567 in Decision on Appeal, Appeal No. 2005-2481, Feb. 9, 2006; Appendix to this Brief).

WHEREFORE, Appellant respectfully requests that the Board find that the claims 1-65 presented on appeal are patentable.

Respectfully submitted,

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(8) CLAIMS APPENDIX

What is claimed is:

1. (Original) A root growth barrier, comprising a layer of a root-tip-trapping material bonded to a layer of a root-impenetrable material.
2. (Original) The barrier of claim 1, wherein the root-impenetrable material is water-impenetrable.
3. (Original) The barrier of claim 1, wherein the root-tip-trapping material comprises greater than 10 root-tip-trapping elements per square inch.
4. (Original) The barrier of claim 1, wherein the root-tip-trapping material is a porous fabric.
5. (Previously Presented) The barrier of claim 4, wherein the porous fabric has a weight per square yard of between 2 and 10 ounces.
6. (Previously Presented) The barrier of claim 5, wherein the porous fabric has a weight per square yard of between 4 and 6 ounces.
7. (Original) The barrier of claim 4, wherein the porous fabric has openings between 1/16 and ¼ inch.
8. (Original) The barrier of claim 4, wherein the porous fabric is a spun bonded, needle punched fabric.
9. (Original) The barrier of claim 8, wherein the porous fabric is selected from polyester, polypropylene or other olefin fiber.

10. (Original) The barrier of claim 4, wherein the porous fabric is a woven or knitted fabric.
11. (Original) The barrier of claim 10, wherein the porous fabric is degradable.
12. (Original) The barrier of claim 11, wherein the porous fabric is cotton.
13. (Original) The barrier of claim 4, wherein the porous fabric is opaque.
14. (Original) The barrier of claim 13, wherein the porous fabric is black or gray.
15. (Original) The barrier of claim 1, wherein the root-tip-trapping material is bonded onto the root-impenetrable material by a method selected from gluing, laminating and combinations thereof.
16. (Original) The barrier of claim 1, wherein the root-impenetrable material is comprised of a plurality of layers.
17. (Original) The barrier of claim 1, wherein the root-impenetrable material is reflective.
18. (Original) The barrier of claim 1, wherein the root-impenetrable material is a polymer sheet.
19. (Original) The barrier of claim 1, wherein the root-impenetrable material is selected from polyethylene and polypropylene.
20. (Original) The barrier of claim 1, wherein the root-impenetrable material is metal.
21. (Original) The barrier of claim 1, wherein the root-impenetrable material is a metal foil.
22. (Original) The barrier of claim 1, wherein the root-impenetrable material is aluminum foil.

23. (Previously Presented) The barrier of claim 1, wherein the root-impenetrable layer is impervious to UV radiation.
24. (Original) The barrier of claim 18, wherein root-impenetrable material is white.
25. (Original) The barrier of claim 1, wherein the root-impenetrable layer has a thickness between 2 and 10 mils.
26. (Original) The barrier of claim 1, wherein the root-impenetrable layer has a thickness between 3 and 5 mils.
27. (Original) The barrier of claim 1, wherein the root-impenetrable material is biodegradable.
28. (Original) The barrier of claim 27, wherein the biodegradable material is selected from wood, fiber, starch, polyhydroxyalkanoates, polycaprolactone, polylactide aliphatic copolymer, polylactide, aliphatic polyester, an aliphatic-aromatic copolymer, and combinations thereof.
29. (Original) An apparatus, comprising:
 a root-impenetrable container for growing a plant; and
 a root-tip-trapping material bonded to an inner wall of the container.
30. (Original) The apparatus of claim 29, wherein the container is formed into a shape selected from cylinders, squares, rectangles, cubes, blocks, hexagons, octagons, ovals, pentagons, triangles and circles.
31. (Original) The apparatus of claim 29, wherein the container has a diameter between 2 and 96 inches.
32. (Original) The apparatus of claim 29, wherein the container has a diameter between 5 and 60 inches.

33. (Original) The apparatus of claim 29, wherein the root-tip-trapping material is a spun bonded, needle punched fabric.
34. (Original) The apparatus of claim 33, wherein the fabric has a density between 2 and 10 ounces per square yard.
35. (Original) The apparatus of claim 33, wherein the fabric has a density between 4 and 6 ounces per square yard.
36. (Original) The apparatus of claim 29, wherein the root-impenetrable container comprises polyethylene and the root-tip-trapping material comprises spun bonded fabric.
37. (Original) The apparatus of claim 36, wherein the polyethylene has a thickness between 2 and 10 mils.
38. (Original) The apparatus of claim 36, wherein the polyethylene has a thickness between 3 and 5 mils.
39. (Original) The apparatus of claim 36, wherein the polyethylene contains additives.
40. (Original) The apparatus of claim 39, wherein the additives comprise UV inhibitors.
41. (Previously Presented) The apparatus of claim 29, wherein the root-tip-trapping material is black or grey.
42. (Original) The apparatus of claim 29, wherein the root-tip-trapping material is a woven or knitted fabric.
43. (Original) The apparatus of claim 29, wherein the container is assembled by sewing or stapling.

44. (Original) The apparatus of claim 33, wherein the container is a grow-bag or in-ground container.
45. (Original) The apparatus of claim 33, wherein the container is a production pot in pot-in-pot production.
46. (Original) A method of growing a plant in a pot comprising the steps of:
 disposing a bilayer root growth barrier consisting essentially of a root-tip-trapping inner material bonded to a root-impenetrable material;
 disposing a growth medium adjacent to the root growth barrier; and
 adding a plant to the growth medium.
47. (Original) A method of growing a plant in-ground, comprising the steps of:
 placing growth medium in a container comprising a bilayer consisting essentially of a biodegradable root-impenetrable outer material bonded to an inner root-penetrable material; and
 adding a plant to the growth medium.
48. (Original) A root growth barrier, consisting essentially of:
 a layer of a root-tip-trapping material bonded to a layer of a root-impenetrable material .
49. (Original) A root growth barrier, comprising:
 a polymer sheet having a surface bonded to a porous fabric.
50. (Previously Presented) The barrier of claim 49, wherein the porous fabric has a weight per square yard of between 4 and 6 ounces.
51. (Original) The barrier of claim 49, wherein the porous fabric has openings between 1/16 and 1/4 of an inch.
52. (Original) The barrier of claim 49, wherein the porous fabric is selected from spun bonded and needle punched fabric, woven fabric, and knitted fabric.

53. (Original) The barrier of claim 49, wherein the porous fabric is selected from polyester, polypropylene and cotton.
54. (Original) The barrier of claim 49, wherein the polymer sheet is white and the porous fabric is black.
55. (Previously Presented) The barrier of claim 49, wherein the porous fabric is bonded onto a polyethylene sheet by a method selected from gluing, laminating and combinations thereof.
56. (Previously Presented) The barrier of claim 49, wherein the polymer sheet is a polyethylene sheet has a thickness between 2 and 10 mils.
57. (Original) A root growth barrier, comprising:
 a polyethylene sheet; and
 a porous fabric layer bonded to a surface of the polyethylene sheet, wherein the porous fabric layer is selected from spun bonded and needle punched fabric, woven fabric, and knitted fabric.
58. (Original) The barrier of claim 57, wherein the polyethylene sheet is white and the porous fabric layer is black.
59. (Original) The barrier of claim 57, wherein the porous fabric layer is bonded onto the polyethylene sheet by a method selected from gluing, laminating and combinations thereof.
60. (Original) The barrier of claim 57, wherein the polyethylene sheet has a thickness between 2 and 10 mils.
61. (Previously Presented) The barrier of claim 57, wherein the porous fabric layer has a weight per square yard of between 2 and 10 ounces.

62. (Previously Presented) The barrier of claim 57, wherein the porous fabric layer has a weight per square yard of between 4 and 6 ounces.
63. (Original) The barrier of claim 1, wherein the root-tip-trapping layer comprises a plurality of strata.
64. (Original) The barrier of claim 25, wherein the root-impenetrable material is water-impenetrable.
65. (Original) The barrier of claim 1, wherein the root-tip-trapping material comprises greater than 100 root-tip-trapping elements per square inch.

(9) EVIDENCE APPENDIX

NONE

(10) RELATED PROCEEDINGS APPENDIX

A Decision on Appeal was mailed February 9, 2006 for Appeal No. 2005-2481 regarding the presently appealed U.S. Application No. 10/075,096 filed on October 29, 2001. A copy of that Decision is attached.

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

MAILED

FEB 09 2006

U.S. PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CARL E. WHITCOMB

Appeal No. 2005-2481
Application No. 10/075,096

ON BRIEF

Before GARRIS, WALTZ, and TIMM, Administrative Patent Judges.
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 1-65.

The subject matter on appeal relates to a root growth barrier. With reference to the appellant's drawing, the root growth barrier 12 comprises a layer of a root-tip-trapping material 18 bonded to a layer of a root-impenetrable material 16. The root-tip-trapping material may be a porous fabric made of polyester, polypropylene or cotton.

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This appealed subject matter is adequately represented by independent claims 1 and 49 which read as follows:

1. A root growth barrier, comprising a layer of a root-tip-trapping material bonded to a layer of a root-impenetrable material.

49. A root growth barrier, comprising:
a polymer sheet having a surface bonded to a porous fabric.

The references set forth below are relied upon by the examiner in the § 102 and § 103 rejections before us.

| | | |
|-------------------------|-----------------------|---------------|
| Thomas | 5,311,700 | May 17, 1994 |
| Flasch, Jr. (Flasch) | 5,852,896 | Dec. 29, 1998 |
| Kalpin | 3,094,810 | Jun. 25, 1963 |
| Reiger | 6,202,348 | Mar. 20, 2001 |
| | (Filed Jun. 22, 1998) | |
| Billings | 6,223,466 | May 01, 2001 |
| | (Filed Oct. 08, 1999) | |
| Berlit et al. (Berlit). | GB 2,073,576 | Oct. 21, 1981 |
| Van der Goorbergh | EP 300573 | Jan. 25, 1989 |

Claims 1, 2, 4, 13-16, 18, 19, 29, 30, 41, 46, 48, 49, 53 and 63 are rejected under 35 U.S.C. § 102(b) as being anticipated by Berlit.

Under 35 U.S.C. § 103(a), the remaining claims on appeal are rejected as being unpatentable over Berlit alone or in various combinations with the other applied references listed above.

We refer to the brief and reply brief and to the answer (as well as the final action mailed January 14, 2004 which is alluded to on page 3 of the answer) for a complete exposition of the opposing viewpoints expressed by the appellant and by the examiner concerning the above noted rejections.

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OPINION

For the reasons expressed below, we cannot sustain any of the rejections advanced by the examiner on this appeal.

The examiner's § 102 rejection cannot be sustained because it is based upon erroneous findings of fact. Specifically, it is the examiner's finding that Berlitz discloses "a root growth barrier comprising a layer of a root-tip-trapping material 11, 14" (Final Office action, page 2) and that Berlitz further discloses "the root-tip-trapping material being polypropylene which is a porous fabric" (id.). However, the Berlitz reference contains no express teaching that layer 11 or layer 14 is formed of a "root-tip-trapping material" (e.g., claim 1) or a "porous fabric" (e.g., claim 49).

It is true that Berlitz's layers 11 and 12 can be formed of certain polymers including polypropylene (e.g., see the paragraph bridging pages 1 and 2 of the Berlitz reference). Apparently, the examiner believes the polypropylene layer taught by Berlitz is tantamount to a root-tip-trapping material and a porous fabric because the here claimed root-tip-trapping material may be in the form of a porous fabric made of certain materials including

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polypropylene (e.g., see the paragraph bridging pages 3 and 4 of the answer). The examiner's belief is meritless.

There is absolutely no basis for considering the polypropylene layer disclosed by Berlitz as a porous fabric. Based on the reference disclosure, this layer need not be either a porous material or a fabric material. It could, for example, be in the form of a nonporous polypropylene film. Analogously, no basis exists for considering Berlitz's polypropylene layer as possessing the root-tip-trapping capability claimed by the appellant.

For the above stated reasons, we cannot sustain the examiner's § 102 rejections of claims 1, 2, 4, 13-16, 18, 19, 29, 30, 41, 46, 48, 49, 53 and 63 as being anticipated by Berlitz.

The examiner has not attempted to cure the above discussed deficiency of Berlitz in any of the § 103 rejections before us. Under these circumstances, we also cannot sustain any of the examiner's § 103 rejections.

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The decision of the examiner is hereby affirmed.

REVERSED

BRADLEY R. GARRIS
Administrative Patent Judge

THOMAS A. WALTZ
Administrative Patent Judge

BOARD OF PATENT
APPEALS AND
INTERFERENCES


CATHERINE TIMM
Administrative Patent Judge

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Appeal No. 2005-2481
Application No. 10/075,096

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